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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/073,344	02/13/2002	Yuji Aburakawa	219585US2	4589

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EXAMINER	
WANG, QUAN ZHEN	
ART UNIT	**PAPER NUMBER**
2633	

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/073,344	ABURAKAWA ET AL.	
	Examiner	Art Unit	
	Quan-Zhen Wang	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 February 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4 and 7-25* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4 and 7-25* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *10/6/03, 3/9/04.* 5/13/04
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election without traverse of Species II which correspond to claims 1, 4, and 7-25 and figs. 5-7 in the reply filed on 2/23/2005 is acknowledged.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

2. Claims 1 and 4 are rejected under 35 U.S.C. 102(b) as being anticipated by Kuo (U.S. Patent US 5,877,880).

Regarding claims 1 and 4, Kuo teaches an optical transmitting/receiving system comprising an optical transmitting apparatus (fig. 2, transmitters 110 and 210), and an optical receiving apparatus (fig. 2, receivers 120 and 220), at which an optical beam including optical signals transmitted from the optical transmitting apparatus via a space transmission path is received (fig. 2, optical beams between 300 and 400), wherein: the optical transmitting apparatus comprises a beam size controlling part for varying a

degree of spread (transmission angle) of the optical beam emitted to the optical receiving apparatus according to a predetermined condition (column 2, lines 59-62).

3. Claims 1 and 4 are rejected under 35 U.S.C. 102(e) as being anticipated by Presby et al. (U.S. Patent US 6,643,467 B1).

Regarding claims a and 4, Presby teaches an optical transmitting/receiving system comprising an optical transmitting apparatus (fig. 4, the combination of 419, 418, and 401), and an optical receiving apparatus (fig. 4, the combination of 402, 423, and 429), at which an optical beam including optical signals transmitted from the optical transmitting apparatus via a space transmission path is received (fig. 4, optical beams 403), wherein: the optical transmitting apparatus comprises a beam size controlling part (fig. 4, controller 430 and 415) for varying a degree of spread (divergence) of the optical beam emitted to the optical receiving apparatus according to a predetermined condition (column 5, lines 19-42; and column 6, lines 26-43).

4. Claims 10, 16, and 22 are rejected under 35 U.S.C. 102(e) as being anticipated by Margalit et al. (U.S. Patent Application Publication US 2002/0051269 A1).

Regarding claim 10, Margalit teaches n optical communication network (fig. 2) comprising a plurality of communication nodes (fig. 2, station 20a-20d) each provided with a function of transmitting and receiving optical signals (paragraphs 0018-0019) and connected by optical transmission paths (for example, fig. 2, paths 26a and 26b), the optical communication network further comprising: a first communication path

comprising at least one communication node (fig. 2, station 20a) and a plurality of optical fiber transmission paths (fig. 2, 14), and a second communication path that is an optical space transmission path (fig. 2, path 26a), between a first communication node (fig. 2, station 20a) and a second communication node (fig. 2, 18b).

Regarding claim 16, Margalit teaches an optical communication network (fig. 2) comprising at least two sub-networks (fig. 2, sub-network formed by 18b, 20b, and the other two nodes on the left hand side of fig. 2) and sub-network formed by stations 20a, 20c and 20d) each including a plurality of communication nodes (fig. 2, transmission modules 18) each provided with a function of transmitting and receiving optical signals (paragraphs 0018-0019), which have no direct optical fiber links among the sub-networks (fig. 2), and a backbone network connecting the sub-networks (fig. 2, backbone network 14), the optical communication network further comprising: a first communication path through the backbone network (fig. 2, path 14), and a second communication path that is an optical space transmission path (fig. 2, path 26a), between a first communication node included in one of the sub-networks and a second communication node included in another one of the sub-networks.

Regarding claim 22, Margalit teaches an optical communication network comprising (fig. 2) a plurality of communication nodes (fig. 2, station 20a-20d) each provided with a function of transmitting and receiving optical signals (paragraphs 0018-0019) and partially connected by optical transmission paths (fig. 2, path 14), the optical communication network further comprising: an optical space transmission path (fig. 2, path 26a) provided between a first communication node (fig. 2, station 20a) having

optical fiber transmission paths (fig. 2, path 14) to other communication nodes (fig. 2, stations 20b and 20c) and a second communication node (fig. 2, station 18b) having no optical fiber transmission paths to other communication nodes.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 11-12, and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Margalit et al. (U.S. Patent Application Publication US 2002/0051269 A1) in view of Liu (U.S. Patent US 6005694).

Regarding claims 11-12, and 17-18, the system of Margalit differs from the claimed invention in that Margalit does not specifically teach that at least one of the first communication node and the second communication node has a path switching part for switching selectively between the first communication path and the second communication path, and the switching the path according to an amount of communication traffic in the first communication path. However, switching between communication paths based on traffic demand are well known in the art. For example, Liu teaches to switch the optical paths through optical cross-connect switches (fig. 1; and column 4, lines 45-57). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate a path switching

part, as it is taught by Liu, into the system of Margalit and configure the system switching selectively between the two communication paths in order to meet the traffic demands using the available capacity of the system.

6. Claims 7-9, 13-15, 19-21, and 23-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Margalit et al. (U.S. Patent Application Publication US 2002/0051269 A1) in view of Presby et al. (U.S. Patent US 6,643,467 B1).

Regarding claim 7, Margalit teaches an optical communication network (figs. 2-4) comprising a plurality of communication nodes (fig. 2, station 20a-20d) each provided with a function of transmitting and receiving optical signals and connected by optical transmission paths (for example, fig. 2, paths 26a and 26b), wherein: at least one of the optical transmission paths connecting two of the communication nodes is configured as an optical space transmission path (fig. 2, path 26a). The system of Margalit differs from the claimed invention in that Margalit does not specifically teach that at least one of the two communication nodes comprises a beam size controlling part for varying a degree of spread of the optical beam emitted to the other communication node of the two according to a predetermined condition. However, it is well known in the art to employ a beam size controlling part for varying a degree of spread of the optical beam emitted to the other communication node of the two according to a predetermined condition in a node of free space optical communication system. For example, Presby teaches an optical transmitting apparatus comprises a beam size controlling part (fig. 4, controller 430 and 415) for varying a degree of spread (divergence) of the optical beam

emitted to the optical receiving apparatus according to a predetermined condition (column 5, lines 19-42; and column 6, lines 26-43). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate an optical transmitting apparatus comprises a beam size controlling part for varying a degree of spread of the optical beam emitted to the optical receiving apparatus according to a predetermined condition, such as the one taught by Presby, into the system of Margalit in order to adjust the optical signal power at the receiver.

Regarding claim 8, Presby further teaches that the beam size controlling part varies the degree of spread of the optical beam according to conditions defined on the basis of a state of the space transmission path (column 6, lines 38-43).

Regarding claim 9, the modified system of Margalit and Presby differs from the claimed invention in that Margalit and Presby do not specifically teach that the beam size controlling part varies the degree of spread of the optical beam according to a condition that at the receiving communication node the received level of the optical beam depending on the state of the space propagation path is constant. However, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to set the beam size controlling part varies the degree of spread of the optical beam according to a condition that at the receiving communication node the received level of the optical beam depending on the state of the space propagation path is constant in order to reduce requirement of wide dynamic range of the optical receiver at the receiving node.

Regarding claims 13, 19, and 23, the system of Margalit differs from the claimed invention in that Margalit does not specifically teach that at least one of the first communication node and the second communication node comprise a beam size controlling part for varying a degree of spread of the optical beam emitted on the optical space transmission path that is the second communication path according to a predetermined condition. However, it is well known in the art to employ a beam size controlling part for varying a degree of spread of the optical beam emitted to the other communication node of the two according to a predetermined condition in a node of free space optical communication system. For example, Presby teaches an optical transmitting apparatus comprises a beam size controlling part (fig. 4, controller 430 and 415) for varying a degree of spread (divergence) of the optical beam emitted to the optical receiving apparatus according to a predetermined condition (column 5, lines 19-42; and column 6, lines 26-43). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate an optical transmitting apparatus comprises a beam size controlling part for varying a degree of spread of the optical beam emitted to the optical receiving apparatus according to a predetermined condition, such as the one taught by Presby, into the system of Margalit in order to adjust the optical signal power at the receiver.

Regarding claims 14, 20, and 24, Presby further teaches that the beam size controlling part varies the degree of spread of the optical beam according to conditions defined on the basis of a state of the space transmission path (column 6, lines 38-43).

Regarding claims 15, 21, and 25, the modified system of Margalit and Presby differs from the claimed invention in that Margalit and Presby do not specifically teach that the beam size controlling part varies the degree of spread of the optical beam according to a condition that at the receiving communication node that is either of the first communication node or the second communication node the received level of the optical beam depending on the state of the space propagation path is constant. However, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to set the beam size controlling part varies the degree of spread of the optical beam according to a condition that at the receiving communication node the received level of the optical beam depending on the state of the space propagation path is constant in order to reduce requirement of wide dynamic range of the optical receiver at the receiving node.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Bloom (U.S. Patent US 6,323,980 B1) discloses a hybrid picocell communication system. Titterton et al. (U.S. Patent US 4,995,101) teaches a secure two-way communications with submerged submarines utilizing a controller setting the beam divergence.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571)

272-3114. The examiner can normally be reached on 9:00 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

qzw
5/18/05

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